

COMMENTS

Applicant affirms the election of claims 27-33. It is respectfully submitted that method claims 45-49 should be considered with the elected claims, as those method claims are very similar in scope to claims 27-33 and it is not believed any additional search should be required to review them.

With regard to the claims under consideration, the Examiner has rejected claims 27-28 under 35 U.S.C. §102 based upon U.S. Patent No. 5,660,165 to Lannes. The Examiner has stated that rejection as follows at paragraph 8 of the Office Action:

“Lannes shows a water heater 10 comprising a burner (not shown, see col. 9, line 21), a heat exchanger 32 with water inlet 26 and a water outlet 28, a recirculation conduit 36, 38 communicating the water outlet 28 with the water inlet 26 and bypassing the heat exchanger, a recirculation valve (not shown, see col. 9, lines 25-38) disposed in the recirculation conduit, a water temperature sensor 17 and a controller 19 which are arranged same as claimed.”

That rejection is respectfully traversed for the following reasons.

The Lannes system has absolutely nothing to do with recirculation conduits, but instead it provides a water heater which has two completely independent heat sources. First it has a primary heat source 12 located in the bottom thereof which heats water contained in the tank wall 24 in a conventional manner. The water flowing through the water heater enters the tank at cold water inlet port 20 and leaves the tank at hot water outlet port 22.

A second heat source is provided to the water in the tank of Lannes by a solar panel 11 which is in fluid communication with the heat exchanger coil 32 referred to

by the Examiner. The heat exchanger coil 32 has inlets and outlets 26 and 28 as noted by the Examiner, but those are not water inlets and outlets. The liquid circulated through the solar panel 11 and the conduits 36 and 38 to the heat exchanger coil 32 is a heat transfer fluid, typically a glycol and water mixture (see col. 8, lines 10-14).

Thus there are two completely independent flow paths in the Lannes reference, one being the water flow path which goes from inlet 20 through the tank 24 to outlet 22, and the other being the heat transfer fluid flow path which is contained within the conduits 36 and 38, the solar panel 11 and the interior of the coil tubing 32. There is no “recirculation” conduit associated with either of those flow paths.

Turning to the specific language of claim 27 it will be seen that there are many shortcomings of the Lannes reference as compared to that language as follows.

The first element of claim 27 is a burner. The only burner disclosed in Lannes would be the primary heat source 12 which is disclosed as being either a burner or an electric heat source.

The second element of claim 27 is “a primary heat exchanger having an exterior surface exposed to the burner for receiving heat from the burner”. The Examiner has referred to element 32 of Lannes as being the heat exchanger, but the coil 32 of Lannes is not exposed to the burner 12, and does not receive heat from the burner 12. In fact, the heat transfer fluid flowing through the interior of the coil 32 is hotter than the surrounding water so that heat is transferred from the coil 32 to the surrounding water, and the coil 32 does not “receive heat” from the burner 12.

Claim 27 goes on to require that the primary heat exchanger have “an inner flow path for flowing water through the heat exchanger”. The inner flow path of the coil 32 of Lannes, however, does not flow the water being heated by the burner, but instead flows a heat transfer fluid which as noted is a combination of glycol and water.

Claim 27 goes on to require “a recirculation conduit communicating the water outlet with the water inlet and bypassing the heat exchanger.” This water outlet and water inlet have to be the water outlet and inlet associated with the water that is to be heated by the burner. The outlet and inlet 26 and 28 referred to by the Examiner, on the other hand, are the outlet and inlet for the heat transfer fluid, which is not heated by the burner 12. That heat transfer fluid is heated by the solar panel 11 and in fact cools off as it passes through the tank 24. Furthermore, the conduits 36 and 38 referred to by the Examiner are not properly characterized as recirculation conduits since they are in fact the only conduits in communication with the coil 32.

Claim 27 next requires “a recirculation valve disposed in the recirculation conduit”. For this element the Examiner refers to the text at col. 9, lines 25-38 of Lannes. However the valve being described there is not a recirculation valve but instead is simply an on-off valve which will stop the flow of heat transfer fluid through the coil 32 from the solar panel 11 when the temperature of the heat transfer fluid is so low that it cannot heat the water. This is presumably when it is dark and the solar panel 11 is not working.

Claim 27 next requires a “water temperature sensor”. The Examiner refers to the sensor 17 of Lannes but again that is not a water temperature sensor, but instead is a heat transfer fluid temperature sensor. The water being heated by the Lannes

system is solely contained within the tank wall 24 and is not in communication with the sensor 17 of Lannes.

Thus it is submitted that independent claim 27 is not anticipated or made obvious, for all the reasons just stated.

The Examiner further rejected claims 29 and 30 under 35 U.S.C. §103 based upon the Lannes patent and stated that rejection as follows:

“The water heater of Lannes as above includes all that is recited in claims 29-30 except for the selected water temperature. It would have been an obvious matter of design choice to select the water temperature at any desired temperature in order to obtain the optimum result since applicant has not disclosed that the claimed temperature solves any stated problem in a new or unexpected way or is for any particular purpose which is unobvious to one of ordinary skill in the art and it appears that the claimed feature does not distinguish the invention over similar features in the prior art.”

That rejection is first traversed for the same reasons as given above for claim 27 from which these claims depend.

Furthermore, claims 29 and 30 are directed to the controller which is required to specifically maintain the water temperature at the water inlet at or above a selected temperature sufficient to prevent condensation of combustion products from the burner on the exterior surface of the heat exchanger.

Contrary to the Examiner's unsupported conclusion that this would be an “obvious matter of design choice”, the system of Lannes has absolutely nothing to do with recirculation or condensation of combustion products and there is no way there would ever be any reason to maintain the temperature at the water inlet above a

selected temperature. In fact as we have already seen, the temperature sensor and controller of Lannes have nothing to do with maintaining a minimum temperature at the inlet, but instead they simply shut down the flow through the coil 32 of Lannes when the temperature of the heat transfer fluid flowing through that coil drops below a level which is sufficient to heat the water within the tank wall 24. Furthermore, since the combustion products from the burner 12 of Lannes never contact the coil 32 of Lannes, the condensation problem addressed by the language of claim 29 is simply not presented by Lannes.

Thus for all these reasons it is submitted that claim 27 and all claims dependent therefrom should be allowed over the Lannes reference.

It is noted with appreciation that the Examiner has indicated that claims 31-33 contain allowable subject matter, but those claims have not been rewritten in independent form since it believed that the parent claims from which they depend are allowable in their original form for the reasons set forth above.

Conclusion

In summary, it is believed that the arguments and amendments set forth above are sound, and accordingly reconsideration of the application along with an early indication of the allowance of claims 27-33 and the corresponding method claims 45-49 is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Lucian Beavers', written over a horizontal line.

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